DOCUMENT RESUME

ED 289 398 HE 020 857

AUTHOR Dinham, Sarah M.
TITLE Between Academe and Professional Practice: Initial Reflections on Analyzing the Role of Professional Practice in Higher Education.
PUB DATE 87
NOTE 15p.; Paper presented at the Western Regional Meeting of the Association of Collegiate Schools of Architecture (1987).
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Architectural Education; Architecture; *College Faculty; Conflict of Interest; *Consultants; Faculty Evaluation; Higher Education; Multiple Employment; *Peer Evaluation; *Professional Recognition; Publish or Perish Issue; Research Needs; Teacher Qualifications; *Teacher Role

ABSTRACT

A complicated and continuously changing issue for faculty in professional schools is reviewed here: the role of faculty practice in their academic lives in general, and in their peer evaluation in particular. The discussion first considers the roles played by faculty professional practice in various professional fields and identifies the underlying themes and controversies both for the organization and for individual faculty members' evaluation. These complications are illustrated with pertinent philosophical, methodological, and political examples for architecture. The discussion concludes with a overview of questions that research on this issue should pursue, including ways in which practice informs teaching. (Author/KM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED289398

BETWEEN ACADEME AND PROFESSIONAL PRACTICE:

INITIAL REFLECTIONS ON ANALYZING

THE ROLE OF PROFESSIONAL PRACTICE IN HIGHER EDUCATION

Presented at

THE PERSON IN THE MIDDLE: DILEMMAS OF ARCHITECTURAL EDUCATION,

the 1987 Western Regional Meeting of the
Association of Collegiate Schools of Architecture

SARAH M. DINHAM, Ph.D.

Lecturer in Architecture
Associate Professor of Education
University of Arizona
Tucson 85721
602-621-6751

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Sarah Dinham

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

HE 020 857

BEST COPY AVAILABLE

BETWEEN ACADEME AND PROFESSIONAL PRACTICE: INITIAL REFLECTIONS ON ANALYZING THE ROLE OF PROFESSIONAL PRACTICE IN HIGHER EDUCATION

Abstract

This paper reviews our current thinking about a complicated and continuously changing issue for faculty in professional schools: the role of faculty practice in their academic lives in general, and in their peer evaluation in particular. The discussion first reviews the roles played by faculty professional practice in various professional fields and identifies the underlying themes and controversies both for the organization and for individual faculty members' evaluation. These complications are illustrated with pertinent philosophical, methodological, and political examples for architecture. The discussion concludes with an overview of questions that research on this issue should pursue.

Context

The Ongoing Research

By way of introduction, this discussion should be viewed in the larger context of our ongoing research. The larger research program is a long-term program examining several professional fields' views of knowledge and of practice, their teaching practices, and their students' learning. The fields being studied -- tentatively medicine, architecture, law, business, and journalism -- were chosen because they differ substantially in theory base, practice requirements, and teaching traditions, as has been demonstrated by such writers as Stark and Lowther (1987). At present the project focuses on architecture for two reasons: first, the epistemological traditions in architecture are diametrically opposed to those in the health sciences, where (of the five fields listed above) the literature base on academic practice and teaching is the most fully developed (see, for example, Dinham & Stritter, 1986). And second, architecture serves a useful exemplar for the larger group of design and performance professions.

While most of the writing from this research program has focused on studio teaching (e.g. Dinham, 1987a, 1987b), there are many on other aspects of faculty life that deserve attention. This paper is the second in a series of attempts to capture and analyze the unique symbiosis for professional faculties between their academic calling and their professional specialization.

As I have pondered questions about faculty practice, two major themes have emerged. They should be stated at the outset of this discussion because they have shaped and colored our more recent thinking and pervade the thoughts that follow. First is the theme we might simply term "variety." It is of course natural that on a given campus the professional schools will vary in the role played by faculty practice. Among campuses across the country, schools in a single field such as architecture also vary substantially in the way faculty practice is defined in and integrated into the faculty member's life. In one school architectural practice might be seen as a distinguished creative effort competing in importance with the physicist's most dramatic scientific work, while at another school architectural practice is intended to augment students' exposure to the processes and product of architectural design. And even within a single faculty, architectural practice might serve as an income supplement for some faculty members and as a creative exploration of innovative design thinking for another.

The second theme thus far identified is more practical: we have found that virtually every faculty member has unequivocal answers for these complicated questions -- but of course these unequivocal answers are always discrepant. On no other subject have we found that faculty members and administrators alike are so sure of their views and so contradictory in their conclusions. This second theme means, of course, that any conclusions drawn from thought or research on the subject will be subject to the most intense criticism, which in this instance is welcomed.

The University

Academic colleges, schools and departments have traditionally been classified as being "arts and sciences" or "professional." At some institutions this delineation has been manifest in organizational structures such as the Berkeley plan with separate provosts for the liberal arts and for the professional schools. Discussions of the professions themselves have also resulted in varying category systems, from Glazer's now-classic (1974) distinction between the major (law, medicine, theology) and minor professions, to Stark and Lowther's (1987) findings about eleven professional fields.

For the present discussion of professional practice, it is also useful to classify professions another way -- by considering those among the academic professional fields in which professional practice is an integral part of [or expected to be an integral part of] the faculty's activities, and those in which it is not. Among the professional schools in which faculty members do not practice the profession (as defined by the practice their graduates will do) are law and engineering, which will suffice as examples.

The Professions

It has been said provocatively that neither a university's law college nor its engineering college is truly a "professional" school. In both cases most students do practice the profession upon graduation, but there the similarity with other professional schools ends. In legal circles the debate centers on whether law school provides a training for professional practice -- how to "think like a lawyer", or alternatively that it provides an education for the intellectual exploration of ideas at the very foundation of society. If the goal is the latter, it is not surprising that faculty members who practice outside the school are disdained for "moonlighting" and for being insufficiently scholarly. And if the law school's purpose is the former-- training for professional skill -- then the faculty can be criticized for being too far removed from the profession's realities to provide a quality legal education. Law schools across the country vary widely in their view of the training/education controversy, but the view that law school provides an intellectual, abstract education clearly is the winner in the controversy. In a sense, legal education can be viewed as an extension of the liberal arts into a defined, somewhat more applied, context.

Similarly, engineering faculties might characterize their field as an extension of the basic sciences. While their graduates might be employed in decidedly applied settings, the faculty pursue research of the most focused and basic stripe. In very few ways, except perhaps their links to industry and their consulting, do engineering faculty "practice engineering." Indeed, the discoveries and contributions made in their consulting are likely to result in publications and thus be seen as research.

In sum, law and engineering faculties illustrate the interesting case of university faculty members who teach but do not practice the profession in the manner in which their graduates are expected to practice. Other fields illustrating this point are education, where faculty do not teach K-12th graders, nursing, where faculty supervise but do not provide primary nursing care, and pharmacy, where faculty prepare but do not act as practicing pharmacists. In some such fields, "having practiced" the profession is essential; in others it is not.

Among the fields in which the practice of one's profession is intrinsic to the faculty member's intellectual life are medicine, architecture, and journalism. In each of these cases-- although for vastly differing reasons with vastly differing personal and organizational results -- faculty professional practice is not only expected but, in varying ways, an inextricable part of the faculty role.

In these three fields, faculty practice a version of their profession that is usually more refined and always more

specialized than is the practice of their graduates. Nonetheless, faculty practice is inextricable from other faculty roles. In medicine the tertiary care provided by physicians in university-affiliated hospitals, while rather distantly removed from the practice graduates are expected to pursue, is conducted with students at the physician's elbow and research protocols folded into her patient's chart. In journalism the faculty teacher is a faculty writer, usually concentrating less on the kinds of reporting his graduates will be hired to do, and instead practicing investigative journalism, feature writing, and op-ed research. In architecture the faculty member's distinguished design products can be seen by all who visit the exhibit or view the building: students learn from the faculty member's work, colleagues can appraise it, and the community is served by her participation.

The Confounding of Practice with Teaching and Scholarship

Of the myriad complexities in full time faculty members' professional practice, the most telling for faculty evaluation is the confounding of practice with the scholarship, teaching, and service said to be the academic's three functions. Of these, the two most problematic are teaching and research; service is so variously defined among colleges and universities that it is virtually impossible to make useful conclusions about it.

Teaching

Two models for the relationship of architectural practice with teaching bear mention in this discussion: the notion that practice is a part of teaching, and the view that practice informs teaching. As the discussion below will reveal, the latter view prevails.

In a series of interviews with Berkeley design faculty, Parman and Kwei use an interesting segment of their interview with Dick Peters to illustrate one view of teaching's relationship to practice:

> It was Bill Wurster who set up the College to require that its faculty have outside creative interests, in addition to teaching. Dick Peters concurs with this policy, finding practice and teaching inseparable, and mutually enriching. "Apprenticing with Reichek and Prestini taught me how creative effort contributes to teaching, and not just to practice," he says, alluding to another Wurster requirement--that junior faculty work with their senior colleagues before being allowed to teach on their own (1987, p. 10).

In reality, the influence of architectural practice on teaching is indirect. Practice generally takes place

independently of undergraduate teaching; its contribution to teaching is in its effects on the faculty member's thinking, the timeliness of perspectives, the "state of the art." While in some cases architecture faculty members may hire promising students to work part time in their offices, or adjunct faculty might identify promising seniors to hire after graduation, it is seldom that undergraduate students are actually involved on a daily basis with the faculty member's practice. Graduate students are, of course, more likely to work collegially with a practicing faculty member on design proposals or building projects, especially if their work is in a research center associated with the architecture school.

The notion that creative effort including architectural practice informs teaching lies at the foundation of many professional faculties' thinking about teaching. In fact, this perspective of faculty practice is embodied in many schools' policies about faculty consulting/practice activities, according to the Georgia Institute of Technology (GIT) study of last year. The study reported one overriding concern to be that "the teaching responsibilities and university commitments are considered primary" (Hughes, 1986, p. 1). The report continued with some sample comments about practice and teaching from the responding schools:

> In my opinion, it is extremely important that students be exposed to practitioners on a regular basis....
>
> We consider it [faculty consulting/practice] a benefit to students.

These are, however, a minority of comments from the Hughes report; the vast majority referred in various ways to the view of creative design work/architectural practice as a form of scholarship substituting for research.

Scholarship

For architecture, the most difficult confounding of practice with other faculty responsibilities occurs in the academic community's definition of scholarship. The logic of the argument is this: since a university exists to provide leadership to society by advancing the state of knowledge in its various fields, it follows that in a professional school a faculty member's responsibilities should include forms of scholarly inquiry that challenge the field's frontiers. While in most of the academic community "scholarship" is translated as "research and writing," for architecture the definitions are not so easy. In architecture the forms of scholarly inquiry most commonly pursued are criticism, research, distinguished design explorations, and exemplary practice (this typology varies with varied perspectives). For many faculties the last two of these

categories are combined into a general category of "exemplary practice recognized by peers."

Practice is a Form of Scholarship

The predominating themes of the Hughes report on faculty consulting/practice concern the dynamic tension between practice and scholarship. In this report and in many faculties' thinking, whether practice is or can be a form of scholarship has not been clear. The strongest statement favoring the view that distinguished practice is a form of scholarship came from a major, private western university:

> At [school] the faculty in architecture are encouraged to practice within the limits of noninterference with their other academic responsibilities in teaching and service. This policy recognizes architectural practice as the equivalent of practice in the arts, such as painting or sculpture, where it is the primary mode of inquiry for our discipline. Thus, there is an additional responsibility added for our faculty, which is to exhibit, publish, or otherwise present the "findings" of their practice. In these terms, practice is one of our principle means of scholarship. The practice of our faculty is expected to be of high quality and they are expected to be articulate about the architectural issues and ideas their practice allows them to explore (Hughes, 1986, p.5).

Carrying the idea of distinguished practice as scholarship into the practical realm of faculty review, another respondent explained,

> Consulting and practice may or may not have an impact on our reappointment, promotion and tenure process. Our faculty reviews are based on the individual's teaching, creative work and administrative service. If the works in practice are part of the creative works for that person then they would be included together with scholarly works. The work must meet the same test of originality and contribution to the field as for scholarly works. Merely having performed practice is of no value (p.6).

And another:

> [Practice is encouraged] if the result of the practice/ consultation is beneficial to the reputation of the school and the expansion of knowledge in the discipline; that is, it must result in publication or design awards, must be experimental in nature and/or must be documented as relating to ...teaching.... (p.6)

Practice is not Scholarship

These arguments should not, however, be thought to represent the consensus on practice and scholarship, eloquent and logical though they may seem. There is an entirely conflicting point of view -- that practice is outside the realm of academic responsibilities. Again, the Hughes report includes varied and often equally eloquent views about this second perspective on academe in general and -- by exclusion -- about scholarship in particular:

> We do encourage faculty to consult and practice, although we expect that ladder faculty members treat their academic obligations as their primary responsibility during the ten-month academic year (p.2).

This respondent's distinction between "practice" and "academic obligations" is not rare. Others expressed similar views:

> The faculty is aware that consultation/practice will become a negative issue ... when it interferes with the performance of their contractual responsibilities to the University -- including not only teaching but also full participation in departmental affairs ... and the conduct of scholarly activities.

> [Practice/consulting is encouraged] as faculty development, yes, but primarily by taking leave to do so...As long as it does not displace commitment to school (p. 2).

These two respondents reveal that (at least in their perceptions for their own schools) practice can be antithetical to "scholarly activities" and "commitment to school," a view implied in the wording of at least one question in the GIT study:

> Do you <u>limit the amount of time</u> one can devote to consulting/practice? If so, how much time do you <u>permit</u>? (Italics mine)

By implying that amount of time is "limited" and its use "permitted" the question implies that the practice/consulting are not part of the academic responsibilities every faculty member is expected to fulfill. The view that practice, even exemplary practice of distinguished design work, is not necessarily a form of scholarship is widespread in our profession.

In sum, the relationship of practice to scholarship is mixed. When the faculty member's professional work is defined as "distinguished design accomplishments recognized by awards and publication," or as "exemplary practice recognized by peers," practice takes its place with research and criticism among the forms of scholarly inquiry found in the academic architect's

repertoire. When practice is seen as "mere practice," a conflict with the faculty member's "commitment to the school," an activity "outside their academic obligations," it moves to the realm of entrepreneurship, a not unrelated problem addressed below.

Issues for Faculty Evaluation

When distinguished practice is treated as a form of scholarly inquiry, its place in faculty peer evaluation for rank, pay and tenure decisions becomes crucial. In the paragraphs below, where issues of standards, pay, and documentation are discussed, the overriding theme is the contribution to advancement of scholarship made by distinguished practice.

Standards

Three issues must be considered in considering the architecture faculty's standards for rank, pay, and tenure decisions: whether the profession's or the academic's standards are employed in assessing the quality of the practice, whether the standard of comparison is local or national, and the problem of frontier-breaking work unappreciated by colleagues.

Most obvious in the day-to-day tension between practicing architects and their academic colleagues are the implications on the one hand that practicing architects pay far too much attention to the technicalities of architectural practice and not enough to new ideas, and on the other hand that academicians are overly wedded to design theory and insufficiently aware of life's realities. The tension will continue in architecture as it does in all other professional fields' "town/gown" relationships; no discussion here can erase it. The question becomes important, however, as faculty members' practice is peer-reviewed. As an example, while architects all know that design work featured in the Architectural Record or Architecture or even Sunset is design work that has received significant attention, in the academic community these may or may not suffice for evidence that scholarly peer-review standards have been applied.

An interesting analysis of the level of excellence represented in contemporary standards of practice has been offered by Green (1986). His typology distinguishes for personnel review purposes between standards at the "cutting edge, the frontier of knowledge, the generation of new knowledge" the area where the academic community expects faculty to work, and standards at other levels, dubbed "the state of the art," or "customary standards of practice" or "minimum levels of competency," the last of which he points out is difficult for a registry board to specify.

Local versus national standards are particularly important issue for architects because of the relevance of locale in some criteria for judging design. In southern Arizona, for example, we

might find that locally refined criteria for solar and energy-related design and materials are much more stringent that would be the case if the same work were reviewed in a New York competition -- even considering the nationwide increasing interest in environmental adaptation for harsh climates. We like to think that we simply are more sophisticated here about these design and material criteria; as a consequence, a design that would be immensely successful if juried in the Southwest might not fare as well in the East.

Academics commonly complain about the "prophet in my own country" phenomenon, the realization that one's work is more appreciated in proportion to the distance from home. In many fields the professional's work at the frontier of knowledge is recognized first by colleagues in the same niche of specialized scholarship than it is by colleagues in the same building. If assessed by a peer review committee, frontier-breaking design might well receive the passionately mixed reviews that new discoveries often receive in physics or music. Hershberger (1987) has pointed out, however, that this problem is more pointed for the "form givers, the architect's architects" like Graves or even Predock for us here in the West. For evaluation of most academic architects, the most telling question is how to document and give scholarly credibility to the work of "really solid academic practitioners who do very subtle, appropriate, environmentally sensitive, quiet buildings."

The Question of Pay

Because professional practice occurs not in the isolation of the library or laboratory but rather intersects with the "outside world," the results of the practice are often remunerated. This bald fact raises several complications: the role of practice in supplementing university salaries, unwelcome competition with the nonuniversity architectural practicing community, and confounding of work for pay with the merits of the work as viewed by a personnel review committee.

Although for some professions like medicine the pay earned by professional practice becomes part of the faculty member's contracted university salary, in architecture the remuneration is separate. This separation is manifest most clearly in academic policies that limit the amount of time faculty members can spend in their practice/consulting; if distinguished, creative practice is regarded as part of the scholarly mission then policy limitations on time are folly for the faculty that would increase its scholarly pursuits. However if practice is routine, undistinguished, and prosaic, then limitations are necessary to preserve the commitment to teaching.

In communities of less than one million population, the private practice of architecture by faculty members will be deeply resented by architects in the private sector, who see the faculty practice as subsidized by the institution (and if the

institution is publicly funded the resentment is twofold). In states with strong business influence in the legislature, universities are enjoined from competing with the private sector; faculty members while not directly covered by such mandates are often actively discouraged from arousing the ire of the taxpaying public. Creative solutions to such problems can be fashioned, however: it is possible for a nonprofit research unit attached to the architecture school to do design, planning, and building work without directly competing with architectural firms, and faculty members could work with -- rather than against-- community firms in creatively packaged consulting relationships to the benefit of both (Hershberger, 1987).

Sometimes professionals' pay for their distinguished practice creates new and vexing problems for their university colleagues whose work is not marketable in the private sector. Most important for faculty evaluation is the question of whether work done for pay -- however exemplary and groundbreaking the inquiry might be -- should be considered as "scholarship" in personnel decisions. For academic architects the answer for this problem probably lies where it does for their fine arts colleagues: the scholarly work is assessed on its merits alone.

Documentation

Effective faculty evaluation systems rest upon thorough documentation of accomplishments presented completely but efficiently in readily understandable terms to meet criteria specified clearly by faculty consensus. In architecture schools we struggle to find the correct balance between our field's uniqueness and the university community's need for comprehensible documentation. Particularly when architectural practice is presented as the profession's customary form of scholarly inquiry, the role of practice for faculty members can be misunderstood by the larger academic community. For our colleagues across campus for whom inquiry and its dissemination are known as "research" and "writing", distinguished design work recognized by peers and illustrious jurors in public settings can be misperceived. The problems seem to be three: the role of "testimony," issues about publication sources, and problems with forms of submission.

Testimony is becoming a less credible source of personnel review documentation for scholarly work just as testimonial assertions of teaching effectiveness are now becoming inadmissible. Yet the form in which architectural design distinctions are gain, reported, and documented look very much like testimony to the uninitiated liberal arts faculty member. Yet the role of testimony is particularly important in many professional fields. Indeed, testimony can be necessary for assuring questioners that the territory being explored, or the questions pursued, are indeed important; or for assuring critics that the arenas in which the faculty work appears are indeed

respected, or assuring that the form in which the work appears for review is indeed the standard for the profession and a suitable way to demonstrate scholarly accomplishment. Resolving these conflicts about the role of testimony can only occur, of course, in the larger context of how and with what force the scholarly effort is documented.

Questions about quality of publication arenas plague the rank/pay/tenure review process throughout the academic community. For architecture, the arena whose quality is under question is always fraught with personal biases and scholarly predilections about the particular competition, publication, or jury itself. In architecture, too, the publication question is complicated by the fact that very, very few architecture publications are peer-reviewed in the traditional academic sense of the term. For example, in a recently-distributed list of ten publications for academic architects, only two are peer-reviewed and these are quarterlies. Fortunately for the academic architect who counts creative work as a significant part of the scholarly record, the quality of publications is not as important as the reputation of the jury whose findings are published.

As with the two previously discussed problems of documentation, the last -- the form of submission -- is one which plagues academic administrators and faculty alike. Portfolios from architecture faculty can be incomprehensible to institution-wide review committees unfamiliar with their interpretation, and it is usually incumbent upon the architecture administrator or faculty member to make the bridge for their colleagues.

Implications

Through this discussion of professional practice in the life and thinking of the academic architect, several themes have recurred. They bear repetition here, before this paper concludes with directions for further study.

1. The increasing importance of professional schools in the academic community means that their special situations will come to be more, not less, familiar to administrators and faculty in general. For practicing architecture faculty, therefore, it is more, not less, likely that the role of professional practice in the academician's life will be understood and rewarded in the academic marketplace.

2. Colleges and universities will continue to differ significantly in whether professional practice is seen as strengthening teaching, as a legitimate form of scholarly inquiry together with criticism and research, or as entrepreneurship to be controlled by consulting policies. In many schools, practice is seen as informing teaching, and in practicality regarded as an "outside" activity to be regulated through loosely monitored policies. The trend in research universities, however, seems to

be toward considering distinguished design work and/or exemplary practice as a form of scholarly inquiry, to be assessed with other scholarly/creative work. For the latter in particular, articulating the criteria to be used in academic rank/pay/tenure decision making will continue to vex faculty and administrators alike.

3. Review criteria for assessing scholarly/creative practice will of necessity need to be crafted with the utmost care and clarity. Those reviewing the work beyond the architecture school will need special help in understanding the arenas, forms of documentation, and interpretations required for this kind of work; for architecture faculties to effect such an educational program requires time, persistence, and diplomacy.

Research Directions

Billed as "initial reflections," this exploration of policies and issues has not been comprehensive enough to propose definitive conclusions, much less recommendations, for architecture faculty members who incorporate practice in their academic lives. It has become clear through these pages that our understanding of this issue is limited by our lack of published or empirical information. Several of our intentions for future research, already implied in these thoughts, should be summarized here.

First, we need to explore more fully how schools define and express policies for faculty architectural practice; particularly when practice is viewed as a form of scholarship the values of the academic profession are epitomized in those policies. From the atelier to the workshop, architecture studios have been influenced by the practice of the teacher; we must, second, search more completely to understand the ways in which practice informs teaching. And third, we must find how the faculty member's practice differs with the great variety among schools-- in their mission, their faculty's philosophical orientation, their school goals, their faculty and student body sizes.

This menu of research objectives is unlikely to be accomplished without sponsorship, but is the goal of our next efforts.

References

Dinham, S.M. (1987a) "Performance Assessment in Architecture." Presentation at the annual meetings of the American Educational Research Association.

Dinham, S.M. (1987b) "An Ongoing Qualitative Study of Architecture Studio Teaching." Presentation at the annual meetings of the Association for the Study of Higher Education.

Dinham, S.M. and Stritter, F.S. (1986) "Research on Teaching in Professional Education." In Wittrock, M. (Ed.), Handbook of Research on Teaching, 3rd ed. New York: Macmillan.

Glazer, N. (1974) "The Schools of the Minor Professions." Minerva.

Green, E. (1986) "Contemporary Standards of Practice." Tucson: University of Arizona College of Architecture internal document #ARCSRV5.CHT, distributed to faculty members for discussion of promotion/tenure criteria.

Hershberger, R.G. (1987) Personal communication concerning an earlier draft of this paper, April 16, 1987.

Hughes, R.R. (1986) "Consulting/Practice Survey Response Sampling." Atlanta: Georgia Institute of Technology College of Architecture.

Parman, J. & Kwei, J. (1987) "Design and the Teaching of Design." CED News, a publication of the College of Environmental Design, University of California at Berkeley, 5, #2, pp. 4-14.

Stark, J.S. and Lowther, M.A. (1987) "Executive Summary: The Professional Preparation Study Project Survey." Ann Arbor: University of Michigan Center for the Study of Higher and Postsecondary Education.